

## Alaska's 5-year tsunami activity report (1997–2001)

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**Abstract.** Alaska is a vast territory requiring special travel planning considerations year round. It is more than twice as large as Texas, with more coastline than the entire lower 48 States. When superimposed over the continental U.S., Alaska reaches from coast to coast and border to border (Fig. 1). Implementing and managing a Tsunami Preparedness and Mitigation Program presents unique opportunities and difficult challenges. Our program is in the developmental stage when compared with our program partner states. However, recognizing the importance of the program, Alaska's Division of Emergency Services authorized an additional position in May 2000 with an assigned responsibility to energize the Tsunami Preparedness and Mitigation Program by focusing on outreach activities with community leaders, schools, businesses, and partnering with other State and federal agencies. Tsunami program funds do not contribute to any salaries, so we have accounted for that expense as a state contribution to the program. Our efforts are beginning to reap benefits.

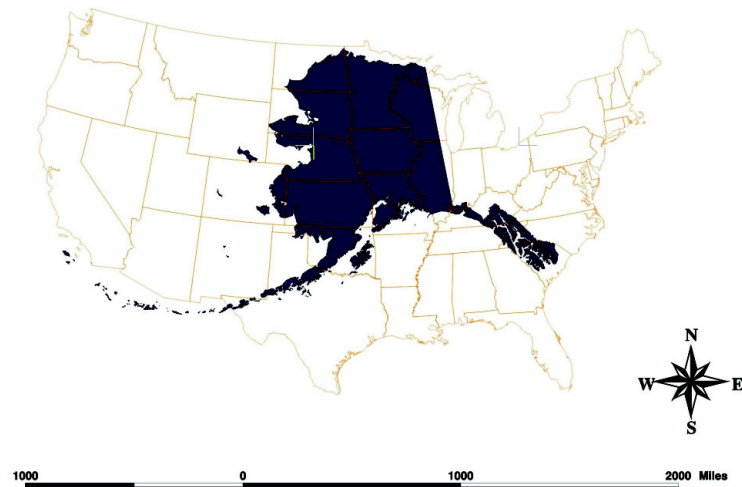
### 1. Education

DES adapted Oregon's tsunami wave logo to localize and enhance the tsunami signs. The signs were modified to reflect "tsunami shelter," "evacuation site," and "Warning Do Not Enter—Tsunami Area" signs. All signs are now part of our program and inventory. We also developed a tsunami hazard zone decal that can be placed on existing signs. The decals are typically placed on park service informational signs. Our first outreach successes were in the communities of Sitka, Sand Point, Homer, and Seward, as well as with Alaska's Division of Parks. Using Oregon's templates as a guide, we developed, purchased, and distributed tsunami hazard zone and evacuation route signs to each of the communities and to a remote recreation area near Valdez, managed by the Division of Parks. Each of the clients has also completed and implemented a tsunami evacuation plan. In collaboration with the West Coast and Alaska Tsunami Warning Center (WC&ATWC), the National Weather Service (NWS), and the Red Cross, we continue to educate and encourage communities to participate in the Tsunami Sign Program and several additional communities are in the preliminary stages of developing their tsunami hazard plans and evacuation routes.

We designed several promotional items to be used in addition to those developed by Oregon to market our Tsunami Preparedness and Mitigation Program. The items were created to complement the multi-agency tsunami awareness and outreach visits and presentations to tsunami-prone communities in southeast, south-central, and southwest Alaska. They include "Know Your Tsunami Preparedness" T-shirts, mouse pads, magnets, patches for kids, credit card ice scrapers, and name tag lanyards. We also designed a pen with a revolving barrel that highlights emergency procedures for coastal

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**Figure 1:** Size of Alaska relative to the continental United States.

area earthquakes and we modified the Oregon version of the heat-sensitive tsunami coffee mug. Some of the items focus on school-age children, who often pass the message to their parents. Regardless of the audience, the items prompt the recipient to ask the questions “Am I at risk? What should I do to prepare?”

In April 2000, DES purchased an Earthquake Simulator with Earthquake Program funds and we are employing it (with earthquake program funds) at schools, businesses, trade shows, and fairs. The “Quake Cottage” (Fig. 2) can simulate up to a magnitude 8.0 earthquake and is a perfect outreach tool to reinforce our earthquake and tsunami preparedness messages. In 2000, we took the Quake Cottage to three state fairs (Fig. 3), three schools, and also demonstrated it for the State Emergency Response Commission and Local Emergency Planning Committee Association. Hundreds of people took advantage of the Quake Cottage’s hands-on method for emphasizing the importance of earthquake and tsunami preparedness and mitigation programs for communities and private citizens. The magnitude 6.8 earthquake near Olympia, Washington in February 2001 generated great interest in our earthquake/tsunami education program. Immediately following the disaster, three major television networks filmed the *Quake Cottage* in action and aired statewide the taped interviews about our earthquake/tsunami programs. We have more requests than we can support and we expect continued success with this unique outreach tool.

## 2. Tools for Emergency Managers

Because of Alaska’s vast size, its mobile population of visitors and workers, and many very small remote communities, we believe it is necessary to provide tsunami awareness information that is consistent, but somewhat lo-



**Figure 2:** The Quake Cottage.

calized; i.e., same format, same message, but some community-specific information. To that end we developed a Tsunami Hazard Warning—Interpretive Sign template to enable customizing while minimizing expense. As community based partners and sponsors vary, so can the sign configuration. They may be further customized with historically significant photos of prior events. The signs are placed in state parks, boat harbors and other community designated locations (Fig. 4).

A Multi-agency Tsunami Work Group can support a tsunami program or activity very effectively. In Alaska, we have convened the Tsunami Inundation Mapping Group specifically to work with local communities in creating tsunami inundation maps. The group consists of scientists and emergency managers, representing seismology, tsunami warning, tsunami modeling, geology, and emergency management. Group members provide technical information and obtain information from local community officials to determine their needs and develop the maps to best satisfy those needs. This process translates to viable inundation maps, which are used to initiate or enhance each community's tsunami preparedness and mitigation program with the Tsunami Sign Program, the Tsunami-Ready Program, an emergency evacuation plan, and/or local tsunami training and exercise program.

Funding from the University of Alaska Fairbanks, the Alaska Science and Technology Foundation (ASTF), and NTHMP was used to create Tsunami Inundation Maps for three adjacent communities on Kodiak Island, Alaska. The maps were completed for City of Kodiak, the U.S. Coast Guard Station Kodiak, and the unincorporated community of Women's Bay. This is a significant accomplishment for Alaska. A difficult challenge to the process stems from the lack of accurate digitized bathymetric data for virtually all of our coastal communities. Complicated and time-consuming data transla-



**Figure 3:** In 2000, the Quake Cottage went to three state fairs.

tion and re-digitizing had to be completed by scientists from TIME and the University of Alaska Fairbanks, Geophysical Institute throughout the modeling process for Kodiak. The Multi-agency Tsunami Work Group visited Kodiak prior to and upon completion of the modeling process to determine the expectations and to validate and refine Kodiak's commitments; and now Alaska's first accurate tsunami inundation maps are being used on Kodiak Island. A tsunami annex has been added to Kodiak's emergency plan, evacuation routing has been identified, tsunami signs have been posted, and efforts are underway to link construction standards with inundation zones.

The Multi-agency Work Group has selected Homer and Seldovia as the next communities to be mapped. Community visits will occur in the spring of 2001 and modeling efforts will be underway before summer.

### 3. Construction, Abatement, and Land Use Guidance

Several coastal communities have warning systems in place that are exercised periodically. Some have simple, outdated sirens and others have more sophisticated electronic/voice systems. A locally funded (\$11K per year) telephone-based callback system called the Community Alert Network (CAN) is in use in the Kenai Peninsula Borough for emergency/disaster notifications. It has been used effectively for several emergency events and is exercised periodically as well. CAN has the capability to contact and alert thousands of residents in the borough in a very short amount of time. The system is also being studied for possible state-wide use.



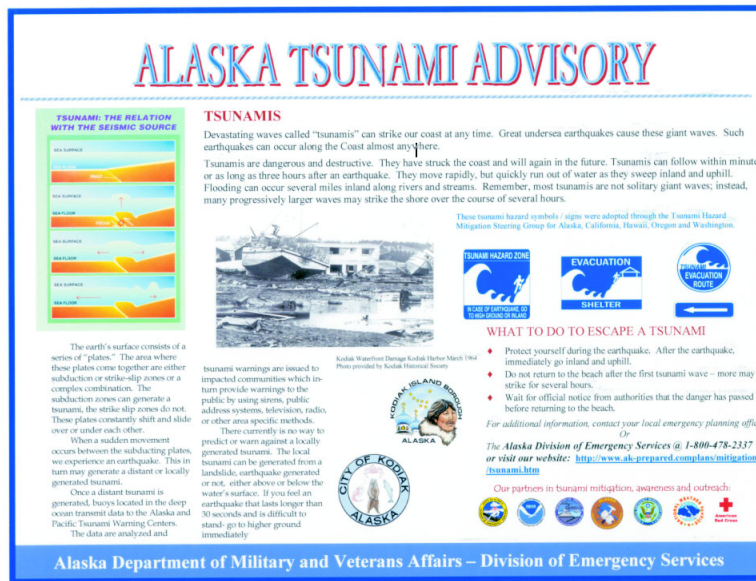


Figure 4: Tsunami Hazard Warning—Interpretive Sign.

#### 4. Information Exchange and Coordination

The DES staff works closely with the State Emergency Response Commission and Local Emergency Preparedness Committees to validate program activities, develop community contacts, and assist with community outreach visits and promotional enterprises. We have also collaborated with local governments, the State Seismologist, the West Coast and Alaska Tsunami Warning Center, the State Department of Transportation, the National Weather Service, and the Red Cross to deliver our Tsunami Sign Program and other tsunami preparedness and mitigation messages to schools, community leaders and the general public.

DES developed a tsunami website with numerous related links.

As a contributor to a multi-state project, Alaska participated in the Tsunami Warning Workshop held in Portland, Oregon 14–15 May 2001. Multi-state project funds paid for emergency managers, first responders, and planners from 15 Alaskan communities to attend. An additional participant from Valdez was funded out of Alaska's tsunami mitigation budget.

#### 5. Long-term Tsunami Mitigation

The National Weather Service's (NWS) Tsunami Ready Program is a long term program that meets both elements of a useful preparedness effort: it is designed to educate local emergency management officials and their public, and it promotes a well-designed tsunami emergency response plan for each community. It enhances tsunami hazard preparedness through an active collaboration among Federal, state, and local emergency management

agencies, the public, and the NWS tsunami warning system. DES has and will continue to support this program with funding and personnel resources.

DES sponsored representatives from Cordova, Kake, Juneau, and Seward to attend the Project Impact Summit 2000. The focus of Project Impact is long-term all hazard mitigation through community/business partnerships. The conference was an excellent opportunity to share ideas with community leaders from other states, institutions, and numerous emergency preparedness and recovery oriented businesses to enhance pre-disaster tsunami mitigation planning and preparedness at the community level.

The process has begun to revise the state hazard mitigation plan and it includes a tsunami mitigation section or annex. An initial draft is complete and we expect the final document to be finished in the next year.

As with our partner states, Alaska, through DES, UAF/GI, WC&ATWC, NWS, and the Red Cross, offers advice and information to tsunami-prone communities regarding evacuation planning, signage, and local educational programs.

## **6. Future Initiatives**

The State of Alaska will sponsor a Tsunami Awareness Workshop for emergency managers, planners, and local officials in communities threatened by tsunami hazards in the fall of 2001. The workshop will be held in conjunction with the semi-annual meeting of the NTHMP Steering Group. We will focus on lessons learned from the Tsunami Warning Systems and Procedures Guidance Workshop and pursue implementation goals.